

WHAT IS CLAIMED IS:

- 1 1. A sensor comprising:
2 a substrate bearing a first electrode coplanar with a second electrode; and
3 a dielectric seismic mass overlying and separated from the electrodes by a gap.
- 1 2. The sensor of claim 1 wherein the first and second electrodes are
2 comb-shaped.
- 1 3. The sensor of claim 1 wherein the dielectric seismic mass comprises
2 Parylene.
- 1 4. The sensor of claim 1 wherein the seismic mass is perforated by holes.
- 1 5. The sensor of claim 1 wherein movement of the seismic mass alters a
2 rate of occupation of space by the dielectric material in a fringe electric field arising between
3 the electrodes.
- 1 6. The sensor of claim 5 wherein movement of the seismic mass normal
2 to the electrode plane alters the rate of occupation of space by the dielectric material.
- 1 7. The sensor of claim 5 wherein movement of the seismic mass parallel
2 to the electrode plane alters the rate of occupation of space by the dielectric material.
- 1 8. The sensor of claim 7 further comprising a third electrode separated
2 from a fourth electrode on the substrate, wherein seismic mass defines a first hole between
3 the first and second electrodes, and a second hole between the third and fourth electrodes, the
4 second hole offset in pitch from the first hole.
- 1 9. The sensor of claim 1 further comprising a beam in contact with an
2 anchor portion and configured to support the dielectric mass over the electrodes.
- 1 10. The sensor of claim 9 wherein the beam exhibits a linear shape.
- 1 11. The sensor of claim 9 wherein the beam is configured to accommodate
2 movement of the seismic mass normal to the electrode plane.
- 1 12. The sensor of claim 9 wherein the beam is configured to accommodate
2 movement of the seismic mass parallel to the electrode plane.

- 1 13. The sensor of claim 9 wherein the beam exhibits a spiral shape.
- 1 14. The sensor of claim 1 wherein the dielectric seismic mass and the
2 beam comprise integral features of a dielectric layer.
- 1 15. A method of fabricating a sensor comprising:
2 patterning a pair of electrodes in a plane defined by a substrate surface;
3 forming a sacrificial material over the electrodes and the substrate;
4 patterning a dielectric layer over the sacrificial material to form a block
5 anchored to surrounding material by a beam; and
6 removing the sacrificial material to leave the block supported by the beams
7 over the electrodes.
- 1 16. The method of claim 15 wherein patterning the dielectric material
2 comprises patterning a Parylene layer.
- 1 17. The method of claim 15 wherein:
2 forming the sacrificial material comprises forming photoresist; and
3 removing the sacrificial material comprises developing the photoresist.
- 1 18. The method of claim 17 wherein:
2 forming the sacrificial material further comprises forming amorphous silicon
3 over the electrodes and the substrate, such that the photoresist is formed over the amorphous
4 silicon; and
5 removing the sacrificial material comprises developing the photoresist
6 followed by etching the amorphous silicon.
- 1 19. The method of claim 17 further comprising partially developing the
2 photoresist to form dimples, such that projections are formed in an underside of the dielectric
3 material corresponding to a location of the dimples.
- 1 20. The method of claim 15, wherein:
2 forming a sacrificial material includes defining a slot; and
3 patterning the dielectric layer includes forming the dielectric material within
4 the slot over the substrate.

1 21. A method of sensing movement of a seismic mass comprising:
2 providing a seismic mass comprising dielectric material overlying and
3 separated by a gap from first and second coplanar electrodes; and
4 detecting fringe capacitance between the first and second electrodes as a rate
5 of occupation of space by the dielectric material changes.

1 22. The method of claim 21 wherein the rate of occupation of space by the
2 dielectric material changes as the seismic mass moves normal to the plane containing the
3 electrodes.

1 23. The method of claim 21 wherein the rate of occupation of space by the
2 dielectric material changes as a hole defined by the seismic mass moves between the
3 electrodes parallel to the plane containing them.

1 24. The method of claim 21 wherein the changed rate of occupation of
2 space by the dielectric material results from one of an acceleration and a change in pressure.